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| EXAMINER | |
|---|---|
| KASTURE, DNYANESH G | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/562,628 | WINKLER ET AL. | |
| | Examiner | Art Unit | |
| | DNYANESH KASTURE | 3746 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *22 Dec 05, 13 Jan 06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. The preliminary amendments to the claims submitted on 12/22/05 are hereby entered, and this office action is in response to those amended claims.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. In Re claim 1, .."which external rotor is equipped with a rotor shaft.." is indefinite because it is not known what the word "which" refers to. The following change is suggested: "..the external rotor is equipped with a rotor shaft..".

5. In Re claim 45, the dependency of this claim is based also on claim 45 which is indefinite, for analysis it is assumed that the dependency was on claim 44.

### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 12, 15, 16, 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Horng (US Patent 6,498,412 B2)

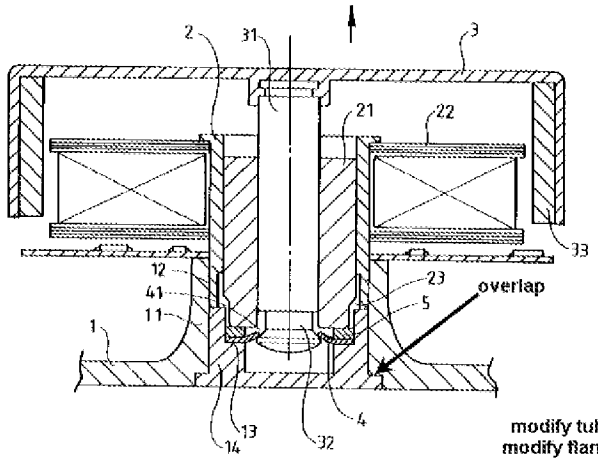


FIG.10

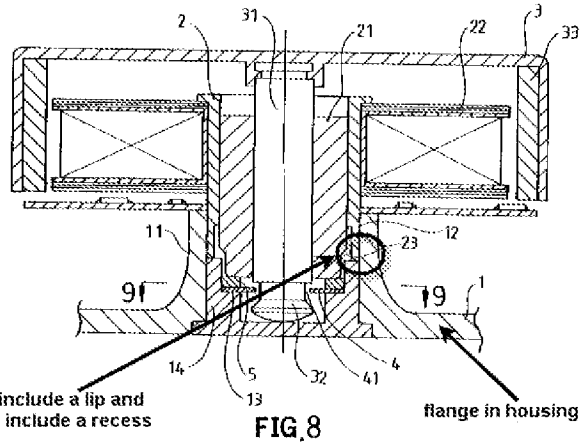


FIG.8

8. In Re claim 1, with reference to Figure 7, Horng discloses a mini-fan (Column 2, Lines 49-50 state: "The casing 1 can be any conventional casing for a motor or heat dissipating fan") that comprises:

- a drive motor (Figures 7, 8, 10) having an external rotor (3) and an internal stator (22), the external rotor is equipped with a rotor shaft (31) that is equipped with a necked down portion (32) adjacent its free end (spherical distal end);
- a bearing tube (2) on whose outer side the internal stator is mounted as depicted, and in whose interior is arranged a bearing arrangement (21) in which the rotor shaft is rotatably supported (Column 2, Line 60 states: "..for rotatably holding a shaft");
- a closure arrangement (14) that closes off the bearing tube in liquid-tight fashion at one end (space 23 is for lubricating oil, so the closure arrangement would have to be "liquid tight to avoid leaks), and is equipped adjacent the necked down portion of the rotor shaft (as depicted) with at least one resilient securing member (4) that engages into that necked down portion of the rotor shaft and secures the rotor shaft against

being pulled out of the bearing arrangement (Figure 8 shows the securing member extending into the necked down portion).

9. In Re claim 12, Horng discloses resilient member (4) protrudes into the necked down portion without touching it as depicted in Figure 8.

10. In Re claims 15 and 16, Horng discloses that the closure arrangement is a plug that abuts the bearing tube at its opening as depicted, and in a liquid tight manner as discussed earlier.

11. In Re claim 18, as depicted in Figure 7 of Horng, in the vicinity of space (23), the tube (2) has a slightly higher inside diameter where the plug is received than the rest of the tube all the way to the top end.

### *Claim Rejections - 35 USC § 103*

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 2, 3, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Fujinaka (US Patent 6,832,853 B2) and in view of Joachimi et al (PG Pub US 20030130381 A1)

14. In Re claim 2, Horng as applied to claim 1 discloses all the claimed limitations except the cover is made of thermoplastic and is attached by a liquid tight weld join as claimed.

15. Nevertheless, Fujinaka discloses in Column 4, Lines 27-30 that cap (9) of the motor is welded to boss (2) in a “substantially” liquid tight weld join (“..if cap 9 solidly contacts with the bearing boss (2) the lubricant will not leak to the outside").

16. It would have been obvious to a person having ordinary skill in the art at the time of the invention to join the closure arrangement (14) and the flange (1) of Horng by welding as taught by Fujinaka for the purpose of preventing the lubricant from leaking to the outside as stated by Fujinaka above.

17. Horng modified by Fujinaka discloses all the claimed limitations except for the material of the cover being a thermoplastic that is at least partially transparent to laser light.

18. Nevertheless, Joachimi et al discloses in Paragraph [0007] that thermoplastics materials are largely transparent or laser-translucent over a certain wavelength range.

19. It would have been obvious to a person having ordinary skill in the art at the time of the invention to make the closure arrangement of Horng of thermoplastic material that is transparent to laser light as taught by Joachimi et al because it is suitable for laser

welding as stated by Joachimi et al in Paragraph [0007]: “..lasers that are normally used for thermoplastics welding..”.

20. In Re claim 3, Fujinaka discloses in Figure 5 that boss/flange (2) contacts the cap/cover (9) at the lower end and is welded thereat, therefore one of ordinary skill would have welded the cover of Horng to the flange at the portion of overlap which is also at the lower end.

21. In Re claim 28, Fujinaka discloses a sintered bearing (3) arranged in a bearing tube (2) that has a reduced inner diameter as depicted in Figure 9 ("difference in inner diameters").

22. Claims 4, 5, 7-9, 17, 19, 29, 35-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Fujinaka (US Patent 6,832,853 B2) and Joachimi et al (PG Pub US 20030130381 A1) and further in view of Ootsuka et al (US Patent 5,264,748 A) and Horng et al (US Patent 6,819,021 B1)

Figure 1 of Ootsuka et al

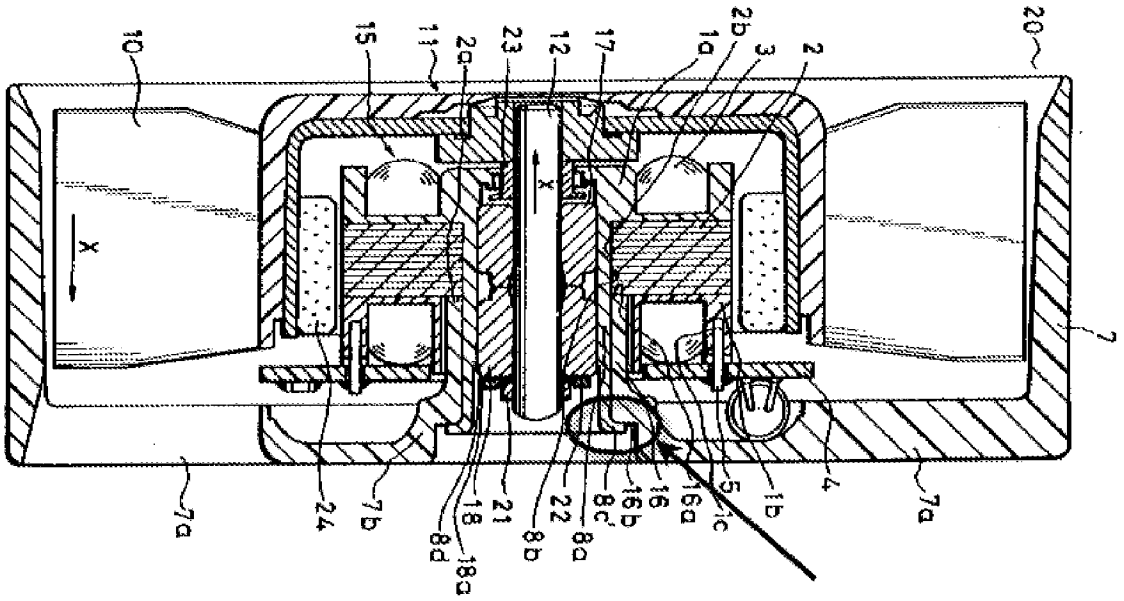


FIG.1

23. In Re claim 4, Horng, Fujinaka and Joachimi et al as applied to claim 2 disclose all the claimed limitations except for the bearing tube being held between the closure arrangement and a portion of the flange.

24. Nevertheless, with reference to Figure 1 depicted above, Ootsuka et al discloses a lip at the end (8c') of the bearing holding part that is welded to a recess in part (16).

25. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the end of the bearing tube of Horng so it has a lip as taught by Ootsuka et al, and to form a corresponding recess as taught by Ootsuka et al in the flange section of the housing of Horng resulting in the bearing tube being held between the flange and the closure element by abutting of the closure element, for the purpose of increasing the engaging strength between the axle tube and base as stated in Column 3, Lines 46-50 of Horng et al: “the lower portion of the outer periphery of the axle tube 11 is securely engaged with the inner periphery of the flange 102, with the

protrusion 111 being securely engaged in the positioning groove 103. Thus, the engaging strength between the axle tube 11 and the base 10 is increased".

26. In Re claim 5, Ootsuka et al discloses a lip at the end (8c') of the bearing holding part is welded to a recess in part (16), a weld can be made liquid tight. Also Horng et al states that rotation of the axle tube relative to base is prevented suggesting a press fit (Column 3, Lines 51-53 of Horng et al).

27. In Re claims 7, 8, 9 Horng modified Ootsuka et al disclose the radial projection (implemented as a flange) is provided at the end of the tube positively engaged between the closure arrangement and flange as suggested by the combination of the elliptically annotated inserts in the figures above.

28. In Re claim 17, Ootsuka et al discloses the lip which is an annular ridge and the recess which is the annular groove that are in a latching connection as depicted. The transition point can also be read as the weld discussed in claim 5. The weld in itself could be read as the groove/ridge combination.

29. In Re claim 19, Ootsuka et al discloses the portion that protrudes away is the ridge/lip installed in an opening/recess part.

30. In Re claim 29, Horng, Fujinaka, Joachimi et al, Horng and Ootsuka et al as applied to claims 3, 5 and 7 discloses all the claimed limitations.

31. In Re claim 35, Horng, Fujinaka, Joachimi et al, Horng and Ootsuka et al as applied to claims 5 and 28 disclose all the claimed limitations.

32. In Re claim 36, Fujinaka discloses in Column 6, Lines 35-40 state that the outer wall of the bearing and inner wall of the boss is protected from scratching, therefore suggesting a better machined surface over the area of contact between the bearing and the boss before they are press fit (Column 6, Line 44). Further, Column 6, lines 22-25 discloses a slightly greater inner diameter grooved wall. The surface finish is therefore worse for the greater inner diameter wall because of the grooves.

33. In Re claim 37, Horng discloses a fan wheel (3) that is equipped with shaft (31) and along with Fujinaka as applied to claim 36 discloses all the claimed limitations.

34. In Re claim 38, Fujinaka discloses in Figure 8 that the bearing (3) has a portion with an enlarged outside diameter, corresponding to reduced inside diameter of the bearing tube (24).

35. In Re claim 39, the bearing (3) of Fujinaka depicted in Figure 8 illustrates that its inner contact points with the shaft (4) are located on the outside portion, and have an enlarged inner diameter in the middle where it is not in contact with the shaft.

36. In Re claim 40, the contact areas between the shaft (4) and the bearing (3) are outside the contact area between the bearing (3) and tube (24).

37. In Re claim 41, Horng discloses that shaft (31) has a free end facing away from the fan wheel (3), and a closure member (14) as described in claim 1.

38. Claims 6, 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Fujinaka (US Patent 6,832,853 B2) and Joachimi et al (PG Pub US 20030130381 A1) and further in view of Ootsuka et al (US Patent 5,264,748 A), Horng et al (US Patent 6,819,021 B1) and Schafroth et al (PG Pub US 20020060954 A1)

39. In Re claim 6, Horng, Fujinaka, Joachimi et al, Ootsuka et al and Horng et al as applied to claim 5 discloses all the claimed limitations (Horng et al discloses “The axle tube 11 is preferably made of metal” in Column 1, Lines 33-34) except for the bearing tube is epilam coated on its side pressed into the flange opening.

40. Nevertheless, Schafroth et al discloses in Paragraph [0053] that the meshing of parts can be epilamized.

41. It would have been obvious to a person having ordinary skill in the art at the time of the invention to apply a coating of epilam as taught by Schafroth et al to the "meshing" exterior of the bearing tube of Horng for the purpose of electrically insulating the housing from the tube since the tube is in contact with the stator (Paragraph [0053] of Schafroth et al states that epilam is a good insulator).

42. In Re claim 30, Horng, Fujinaka, Joachimi et al, Ootsuka et al, Horng et al and Schafroth et al as applied to Claims 6 and 29 disclose all the claimed limitations.

43. In Re claim 31, Horng, Fujinaka, Joachimi et al, Ootsuka et al, Horng et al and Schafroth et al as applied to Claims 7 and 29 disclose all the claimed limitations.

44. In Re claim 32, Horng, Fujinaka, Joachimi et al, Ootsuka et al, Horng et al and Schafroth et al as applied to Claims 2 and 29 disclose all the claimed limitations.

45. In Re claim 33, Horng, Fujinaka, Joachimi et al, Ootsuka et al, Horng et al and Schafroth et al as applied to Claims 1 and 29 disclose all the claimed limitations.

46. Claims 10, 11, 34, 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) and in view of Alex et al (US Patent 6,756,714 B2)

47. In Re claims 10 and 11, Horng as applied to claim 1 discloses all the claimed limitations except for the free end with the tracking cap is supported by a surface that is a depression and equipped with a lubricant.

48. Nevertheless, Alex et al discloses a free end of shaft (22) with a tracking cap (portion under the retainer 23) supported by a surface (Column 4, Lines 21-22: "..distal end of shaft 22 being rotatably supported by the support 35") that is a depression (15 or 35), and equipped with a lubricant (Column 4, Lines 50-52: "..allow flowing of the lubricating oil back to a space between a bottom of the oily bearing 34 and the support 35")

49. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the closure arrangement of Horng to incorporate a support surface depression with a lubricant as taught by Alex et al for the purpose of reducing wear due to friction between stationary and rotating parts.

50. In Re claim 34, Horng, Fujinaka, Joachimi et al, Ootsuka et al, Horng et al, Schafroth et al and Alex et al as applied to Claims 10, 11 and 29 disclose all the claimed limitations.

51. In Re claim 42 and 43, Horng, Fujinaka, Joachimi et al, Ootsuka et al, Horng et al, Schafroth et al and Alex et al as applied to Claims 10, 11 and 41 disclose all the claimed limitations.

52. In Re claim 44, Horng, Fujinaka, Joachimi et al, Ootsuka et al, Horng et al, Schafroth et al and Alex et al as applied to Claim 17 and 37 disclose all the claimed limitations.

53. In Re claim 45, Horng, Fujinaka, Joachimi et al, Ootsuka et al, Horng et al, Schafroth et al and Alex et al disclose all the claimed limitations since it has been held that forming in one piece (making integral) an article which has formerly been formed in two pieces and put together involves only routine skill in the art - MPEP 2144.04 (V-B).

54. Claims 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) and in view of Chuang (German Patent DE 201 18 024)

55. In Re claim 13, Horng as applied to Claim 12 discloses all the claimed limitations except for the spreading member (depicted) deflecting the securing member in the RADIAL direction.

56. Nevertheless, Chuang discloses in Figure 14, a resilient member (11') that is deflected in the radial direction upon installation of shaft (3')

57. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the resilient member of Horng so it is deflected in radial

direction as taught by Chuang for the purpose of simplifying construction and assembly by minimizing the number of parts resulting from making the resilient member and closure arrangement a monolithic inseparable piece.

58. Claims 14, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Alex et al (US Patent 6,756,714 B2) and further in view of Horng et al (US Patent 6,414,411 B1)

59. In Re claim 14, Horng and Alex et al as applied to claim 10 discloses all the claimed limitations except for the tracking cap acted on by magnet force urging in the direction towards the closure arrangement.

60. Nevertheless, Horng et al discloses in Column 2, Lines 64-65: “The permanent magnet on the rotor 3 and the balance plate 11 attract each other”

61. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the part of the flange of Horng that is facing the magnet of the rotor so there is an attraction between the flange and the magnet on the rotor as taught by Horng et al for the purpose of stable rotation of the shaft (Column 3, Lines 14-15 of Horng et al).

62. In Re claim 22, Horng et al discloses the stator (12) or (91) and magnet (97) or (34), the magnet is off center relative to the stator as depicted in Figure 6. The magnet applies a force on the balance plate as discussed earlier.

63. Claims 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Gruber et al (US Patent 4,783,608 A)

64. In Re claim 20, Horng as applied to claim 1 discloses all the claimed limitations except for a lamination stack, stator winding coils and a rigid electrical conductor extending parallel to rotation axis as claimed.

65. Nevertheless, Gruber et al discloses a lamination stack (12) with stator winding (Column 3, Line 18) and a rigid electrical conductor (18) extending parallel to rotation axis as depicted in Figure 1.

66. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the stator configuration of Horng to incorporate the rigid electrical conductor as taught by Gruber et al for the purpose of providing increased resistance to vibration because a rigid conductor is less prone to damage (from flexing) than a non rigid conductor.

67. In Re claim 21, Gruber et al discloses an outwardly protruding flange (17) with an orifice as depicted in Figure 1 for the passage of the electrical conductor (18).

68. Claims 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (US Patent 6,498,412 B2) in view of Takehashi (US Patent 5,610,462 A)

69. In Re claim 23, Horng as applied to claim 1 discloses all the claimed limitations as depicted except for a surface to throw off lubricant into the interior of the tube.

70. Nevertheless, in Figure 1, Takehashi et al discloses a surface (58a) that is configured to throw off lubricant into tube (46c).

71. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the portion of Horng that is attached to the fan wheel to incorporate the lubricant throwing surface of Takehashi et al for the purpose of preventing the lubricant from leaking out as stated in the abstract of Takehashi et al.

72. In Re claim 24, the surface (58a) is an undercut as depicted in Takehashi et al.

73. In Re claim 25, Takehashi et al depicts an inwardly protruding portion (46d)

74. In Re claim 26, Takehashi et al depicts a gap between (58a) and (46d).

75. In Re claim 27, Takehashi et al depicts that the inwardly protruding portion (46d) forms an undercut with the element (46c).

***Conclusion***

76. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Horng et al (US Patent 6,617,736 B1) discloses another axle tube structure for a motor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles G Freay/
Primary Examiner, Art Unit 3746

DGK